



INSTALLATION INSTRUCTIONS

97B0042N03
Rev.: 04 April, 2014

ENERGY RECOVERY VENTILATOR

SERIES DB, DC, DD, DE, DF, DG, DH & DJ

Installation Instructions For Energy Recovery Ventilator (Fixed) For Stand Alone Rooftop Application



Energy recovery COMPONENT certified to the ARI Air-to-Air Energy Recovery Ventilation Equipment Certification Program in accordance with ARI Standard 1060-2000. Actual performance in packaged equipment may vary.



ETL Certified per UL 1995 and CSA 22.2

Inspection

Upon receipt of shipment at the job site, carefully check the shipment against the bill of lading. Make sure all units have been received. Inspect the carton or crating housing of each Rooftop Unit and inspect each unit for damage. Assure that the carrier makes proper notation of any shortages or damage on all copies of the freight bill and that he completes a Carrier Inspection Report. Concealed damage not discovered during unloading must be reported to the carrier within 15 days of receipt of shipment. **NOTE: It is the responsibility of the purchaser to file all necessary claims with the carrier.**

Storage

Upon the arrival of equipment at the job site, immediately store units in a clean, dry area. Do not stack units. **Do not remove equipment from pallets until equipment is required for installation.**

Unit Protection

Cover rooftop units on the job site. Cap the open ends of pipes. In areas where painting, plastering, roofing, or the spraying of fireproof material has not been completed, all due precautions must be taken to avoid physical damage to the units and contamination by foreign material. **Physical damage and contamination may prevent proper start-up and may result in costly equipment cleanup.**

Application

Field supplied balancing dampers in duct are recommended.

Recovery Wheel Mode

The Recovery Wheel mode is accomplished by two blowers providing continuous exhaust of stale indoor air and replacement by equal amount of outdoor air. Energy recovery is achieved by slowly rotating the energy recovery wheel within the cassette frame work. In winter, the ERV adsorbs heat and moisture from the exhaust air stream during one half of a complete rotation and gives them back to the cold, drier intake air supply during the other half rotation. In summer, the process is automatically reversed. Heat and moisture are absorbed from incoming fresh air supply and transferred to the exhaust air stream. This process allows outdoor air ventilation rates to be increased by factors of three or more without additional energy penalty or increase in size of heating or air conditioning systems.

Rigging Unit For Lifting

1. Maximum weight 300-1200 lbs. See Physical Data Table.
2. Remove crating.
3. All panels must be in place for rigging.
4. Remove barometric exhaust hood from door marked filter access. Install barometric exhaust hood over exhaust blower outlet.
5. Forklift channels must be removed from the base of ERV.
6. Position unit and provide service access to ERV control access door and wheel.
7. Duct work should be installed into roof curb before installing ERV on curb.
8. Roof curb gasket must be applied to all top surfaces of the curb.
9. Position unit on roof curb and provide service access to ERV control access door and wheel.

⚠ CAUTION! ⚠

CAUTION! Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

⚠ WARNING! ⚠

WARNING! Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

⚠ WARNING! ⚠

WARNING! To avoid equipment damage, do not use these units as a source of heat during the construction process. The mechanical components and filters used in these units will quickly become clogged with construction dirt and debris which may cause system damage.

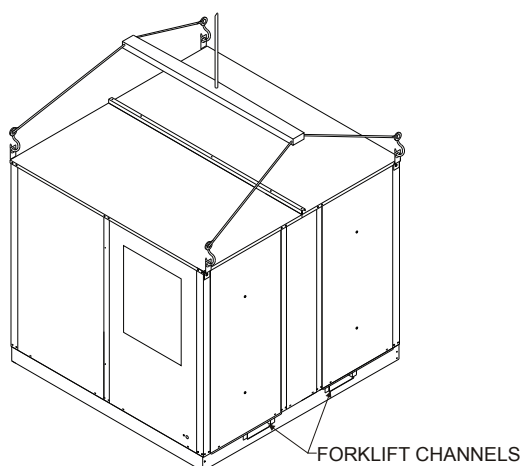
⚠ WARNING! ⚠

WARNING! The installation of water-source heat pumps and all associated components, parts, and accessories which make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with ALL applicable codes, regulations and ANSI/NFPA No. 70

D (ERV) Series

Rev.: 04 April, 2014

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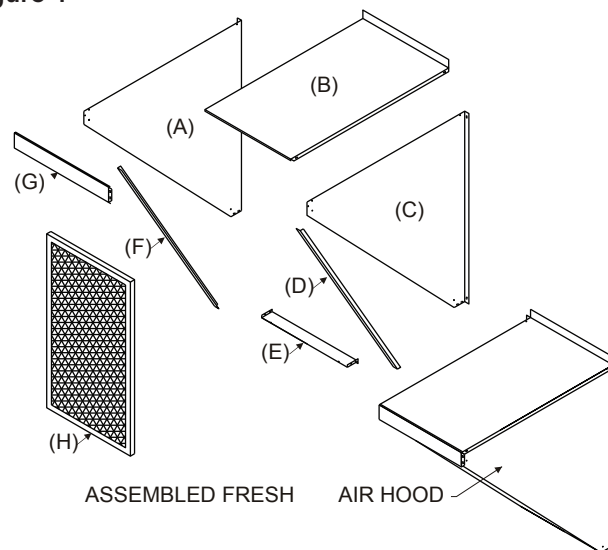


Installation

Fresh Air Hood Assembly (See Figure 1)

1. Secure hood sides (A and C) to Hood top (B) using the supplied #10 x 1/2 screws.
2. Secure filter channels (F and D) to hood sides using the supplied #10 x 1/2 screws.
3. Secure hood bottom (E) to the inside of the hood sides using the supplied #10 x 1/2 screws.
4. Slide the fresh air filter (H) into the tracks created by the front of the hood sides and the filter channels.
5. Secure the filter panel (G) to the hood sides. Slide the filter panel under the front flange of the hood top.
6. Install fresh air hood over ERV fresh air opening on front door panel.
7. Install barometric exhaust hood over exhaust blower outlet.
8. Remove ERV control access panel to connect field wiring.
9. Route class II low voltage wire (3 conductor) from thermostat or energy management through small bushing in end panel of ERV. **See wiring diagram.**
 - a. Thermostat (dependent) - connect in parallel at rooftop unit with "G", "C" and "W". Then connect matching color at terminal 1, 2, and 3 respectively on ERV circuit board.
 - b. Energy Management - provide +24 VAC to "1" and common, 24 VAC to "2" terminals on ERV circuit board.
 - c. Thermostat (dedicated) - splice into +24 vac (blue wire) at (control circuit board) transformer connection run wire to "R" terminal. Then run another wire from "G" terminal to ERV (control

Figure 1



circuit board) terminal block #1.

10. All electrical connections must conform to any local codes and current National Electric Codes (NEC) and Canadian Electric Codes (CEC). Refer closely to unit wiring diagram in unit and/or in these instructions for proper wiring connections.
 11. Refer to the unit nameplate for minimum circuit ampacity (MCA) and maximum overcurrent protection size (fuse).
 12. Electrical data is listed on unit rating plate and motor name plates.
 13. Connect line voltage power supply to ERV fuse block in control box of unit from disconnect switch. **See wiring diagram.**
 14. Ground unit with a suitable ground connection either through unit supply wiring or an earth ground.
- Note: Unit voltage entries must be sealed weather tight after wiring is complete.**
15. Remove motor access panels. Locate belts fastened to blower assembly. Install belt onto motor and blower pulley. Adjust motor sheave to correct blower RPM for CFM and external static pressure requirements. See charts in this instruction. Multiple pulley arrangements are available to meet the entire range.

⚠ CAUTION! ⚠

CAUTION! Blower speed must be adjusted for the given external static pressure and airflow (CFM) requirements. If blower speed is not adjusted for conditions, possible motor over loading can occur.

D (ERV) Series

Rev.: 04 April, 2014

16. Replace access panel onto the ERV unit and secure.
17. Restore power to unit.
18. Cleanup once unit is operating properly, caulk any open joints, holes or seams to make the units completely air and water tight.
19. Leave this instruction manual with owner or in an envelope to be kept near unit.

Operation**(How It Works)**

The unit contains an Energy Recovery Wheel (ERW) that is a new concept in rotary air-to-air heat exchangers. Designed as a packaged unit for ease of installation and maintenance, only the connection of electrical power is required to make the system operational.

When slowly rotating through counter flowing exhaust and fresh air streams the ERW adsorbs sensible heat and latent heat from the warmer air stream and transfer this total energy to the cooler air stream during the second half of its rotating cycle. Rotating at 50-60 revolutions per minute, the wheel provides constant flow of energy from warmer to cooler air stream. The large energy transfer surface and laminar flow through the wheel causes this constant flow of recovered energy to represent up to 85% of the difference in total energy contained within the two air streams.

Sensible and latent heat are the two components of total heat. Sensible heat is energy contained in dry air and latent heat is the energy contained within the moisture of the air. The latent heat load from the outdoor fresh air on an air conditioning system can often be two to three times that of the sensible heat load and in the winter it is a significant part of a humidification heat load.

During both the summer and winter, the ERW transfers moisture entirely in the vapor phase. This eliminates wet surfaces that retain dust and promote fungal growth as well as the need for a condensate pan and drain to carry water.

Because it is constantly rotating when in the air stream, the ERV is always being cleaned by air, first in one direction then the other. Because it is always dry, dust or other particles impinging on the surface during one half cycle, are readily removed during the next half cycle.

During the heating season, when outdoor air temperatures are below 15°F, it is recommended to use the (optional) low ambient kit (field installed).

Optional Kit (Factory Installed)**Motorized Intake Air Damper**

Damper mounts behind the outdoor air intake hood. It opens when the ERV is energized and closes when de-energized. Powered by B30 damper motor.

Pressure Sensor

Measurement device on the ERV to determine airflow across the Enthalpy Wheel.

Low Ambient Control Kit

Prevents frost formation on energy wheel heat transfer surfaces by terminating the intake blower operation when discharge air temperature falls below a field selectable temperature setting. Intake blower operation resumes operation after temperature rises above the adjustable temperature differential.

The frost threshold is the outdoor temperature at which frost will begin to form on the ERV wheel. For Energy Recovery Ventilators, the frost threshold is typically below 10°F. Frost threshold is dependent on indoor temperature and humidity. The table shows how the frost threshold temperatures vary depending on indoor conditions.

FROST THRESHOLD TEMPERATURE	
INDOOR RH AT 70°F	FROST THRESHOLD TEMPERATURE
20%	0°F
30%	5°F
40%	10°F

Because Energy Recovery Ventilators have a low frost threshold, frost control options are not necessary in many climates. Where outdoor temperatures may drop below the frost threshold during the ERV operational hours, exhaust only frost control option is available.

Low Ambient Kit is appropriate for climates with limited HVAC system operation when outdoor temperatures are below 10°F.

Stop-Start-Jog

Control option that allows intermittent operation of the enthalpy wheel during mild outdoor conditions to provide cycling and cleaning of the wheel.

Motorized Exhaust Damper

Damper mounts inside the exhaust air hood. It opens when the ERV is energized and closes when de-energized. Powered by B31 damper motor.

Rotation Sensor

The circuit indicates the absence of pulses, within a specified time range, provided by a magnetic sensor detecting a magnet mounted on wheel surface.

After the initial time delay of approximately 5 seconds from circuit power up, if the sensor fails to provide a signal pulse (no wheel rotation) within approximately 5 additional seconds, the alarm relay will activate and latch (until circuit powers down) providing a 5 amp contact closure output.

This would indicate no wheel rotation and/or magnet in the system has stopped at the magnetic sensor pickup point. If the pulse (wheel rotation) is detected within the approximately 5 second time period, the alarm relay will remain open. No field timing adjustment of any type will be required.

Dirty Filter Switches

Provides indication (red light) of switch closure (field adjustable set point) when differential pressure across the filter bank has increase to trip when 24 VAC is applied to terminals.

Recovery Wheel Mode

On a thermostat call for blower operation in heating, cooling or continuous blower, the ERW will rotate between fresh air and exhaust air streams. Both the fresh air and exhaust air blowers will also be operating to overcome the air resistance of the ERV.

System Check

1. Disconnect main power.
2. Turn to "Cont" for blower operation on thermostat controlled models.
3. Restore power to unit. Observe ERV wheel rotation and both fresh air and exhaust air blowers will operating.

NOTE: If Low ambient kit is used the jumper between TB37-5 & TB37-6 should be removed. Also if system check out is being conducted at low ambient temperatures, technician should be aware that this kit can cause system not to operate.

4. Verify that the ERV (3) three phase blower motors are phased sequentially ensuring correct rotation and operation.
 - a. Disconnect power.
 - b. Reverse any two field power leads to the ERV.

c. Reapply power.

5. Verify that both blower motors are operating under their full load AMP rating (FLA). The FLA can be found on each motor and the unit nameplate.

**A. Return Damper Settings
(When tied into HVAC System)**

Manually adjust position of field installed dampers to balance air flow.

B. Air Flow / Blower Speed Adjustment

Blower speed selection is accomplished by changing the sheave setting on both fresh air and exhaust air blowers. To set ERV for the required air flow (CFM), the external static pressure applied to the ERV (duct static) must be known. See the CFM vs External Static Pressure chart for the appropriate unit to determine the correct blower RPM for the specified CFM and External Static Pressure.

After blower speed adjustments have been made. Ensure that when the belt is replaced it is tensioned correctly. The motor mounting plate can be adjusted to tension the belt. If using a belt tension checker, adjust the span to the appropriate setting and check the belt deflection force. The belt deflection force should be between 5-8 lbs or the lowest tension at which the belt will not slip under peak load conditions.

1. Disconnect main power to unit before making adjustment to economizer and/or ERV unit.
2. Replace ERV control access cover.
3. Set thermostat to normal operating position.
4. Restore power to unit.

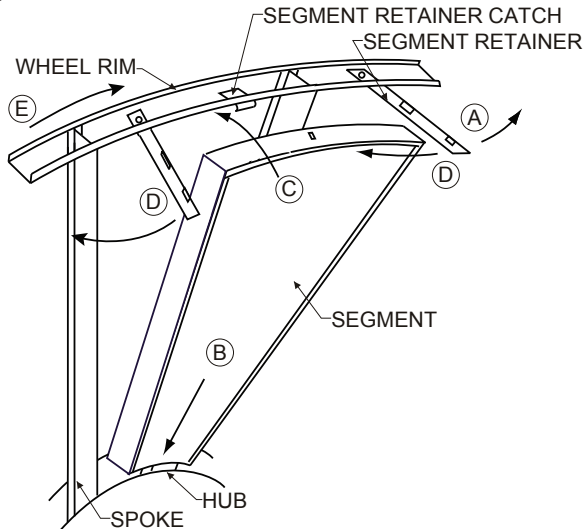
Maintenance

1. All motors use pre-lubricated sealed bearings; no further lubrication is necessary.
2. Make visual inspection of motors, belts and wheel rotating bearings during routine maintenance.
3. Eight pie-shaped segments, are seated on stops between the segment retainer which pivots on the wheel rim and secured to the hub and rim of wheel. Annual inspection of the self cleaning wheel is recommended. With power disconnected, remove ERV access panels (rear) and unplug [J150 & P150] (**Refer to wiring diagram in this instruction manual**). Remove segment and wash with water and/or mild detergent.
4. To install wheel segments follow steps A through E. **See Figure 2.** Reverse procedure for segment removal.

D (ERV) Series

Rev.: 04 April, 2014

Figure 2



- A. Unlock two segment retainers (one on each side of the selected segment opening).
- B. With the embedded stiffener facing the motor side, insert the nose of the segment between the hub plates.
- C. Holding segment by the two outer corners, press the segment towards the center of the wheel and inwards against the spoke flanges. If hand pressure does not fully seat the segment, insert the flat tip of a screwdriver between the wheel rim and outer corners of the segment and apply downward force while guiding the segment into place.
- D. Close and latch each segment retainer under segment retaining catch.
- E. Slowly rotate the wheel 180°. Install the second segment opposite the first for counterbalance. Rotate the two installed segments 90° to balance the wheel while the third segment is installed. Rotate the wheel 180° again to install the fourth segment opposite the third. Repeat this sequence with the remaining four segments.

Pulley Kit Installation

The units are shipped from the factory at the low static setting. Pulley kits are available for the medium and high static settings. To install a pulley kit.

1. Check content of pulley kit, if pulley kit contains:
 - a. An adjustable sheave and a fixed pitch pulley then remove belt and both motor and blower pulley
 - b. An adjustable sheave then remove the motor pulley.

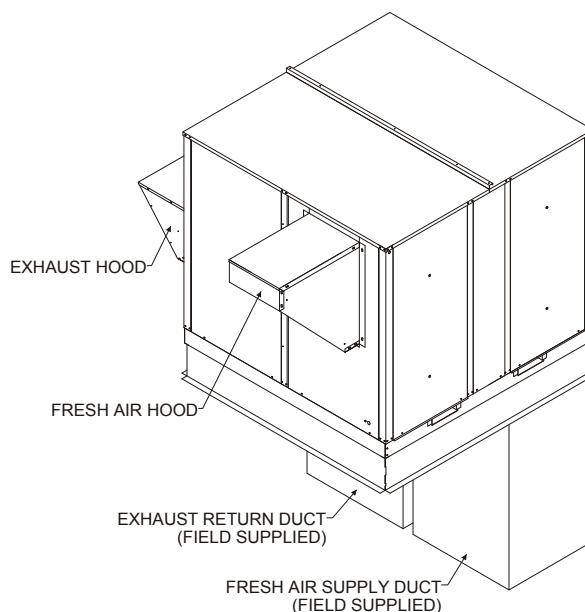
c. A fixed pitch pulley then remove the blower pulley.

2. Replace pulley(s) with the pulley(s) from pulley kit. Make sure each pulley is installed with a key. Tighten the set screw on the pulley(s) to 100 in.lb.
3. Install the belt that came with the pulley kit. Tension belt as explained in the blower speed adjustment section.
4. Check the speed of the blower. Adjust the motor sheave to increase or decrease the speed of the blower. See blower adjustment section.

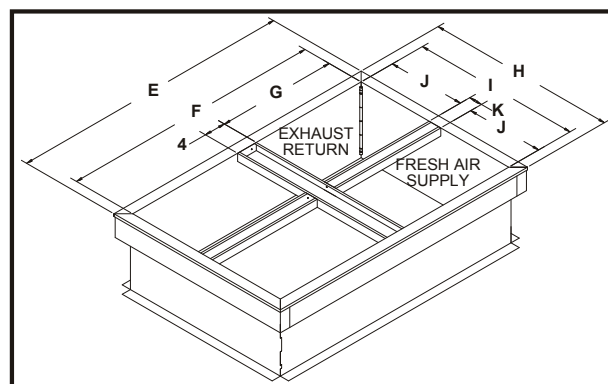
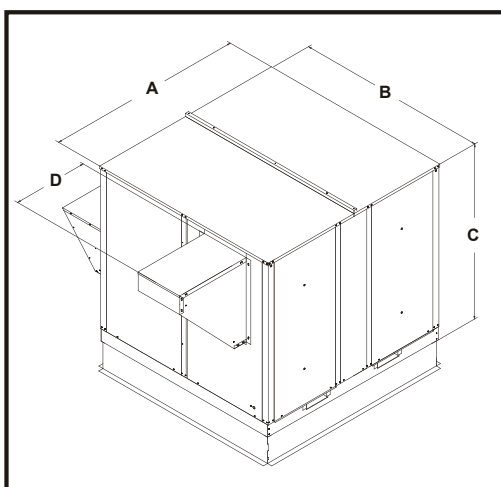
D Series Stand Alone ERV's for Down Discharge Duct Arrangements

Features and Notes:

1. Stand alone design allows higher levels of outdoor air to be introduced into the a/c space.
2. Static test ports provided to verify intake and exhaust CFM.
3. Balancing damper(s) field supplied in ductwork when connected to ERV.
4. Roof curbs are available for the ERV's.
5. See blower performance charts for airflow at various E.S.P.
6. Filter rack with 2" pleated filters included.



ERV Roof Curbs	
Series	Model Number
DB	EVF EVB
DC	EVF EVC
DD	EVF EVD
DE	EVF EVE
DF	EVF EVF
DG	EVF EVG
DH	EVF EVH
DJ	EVF EVJ

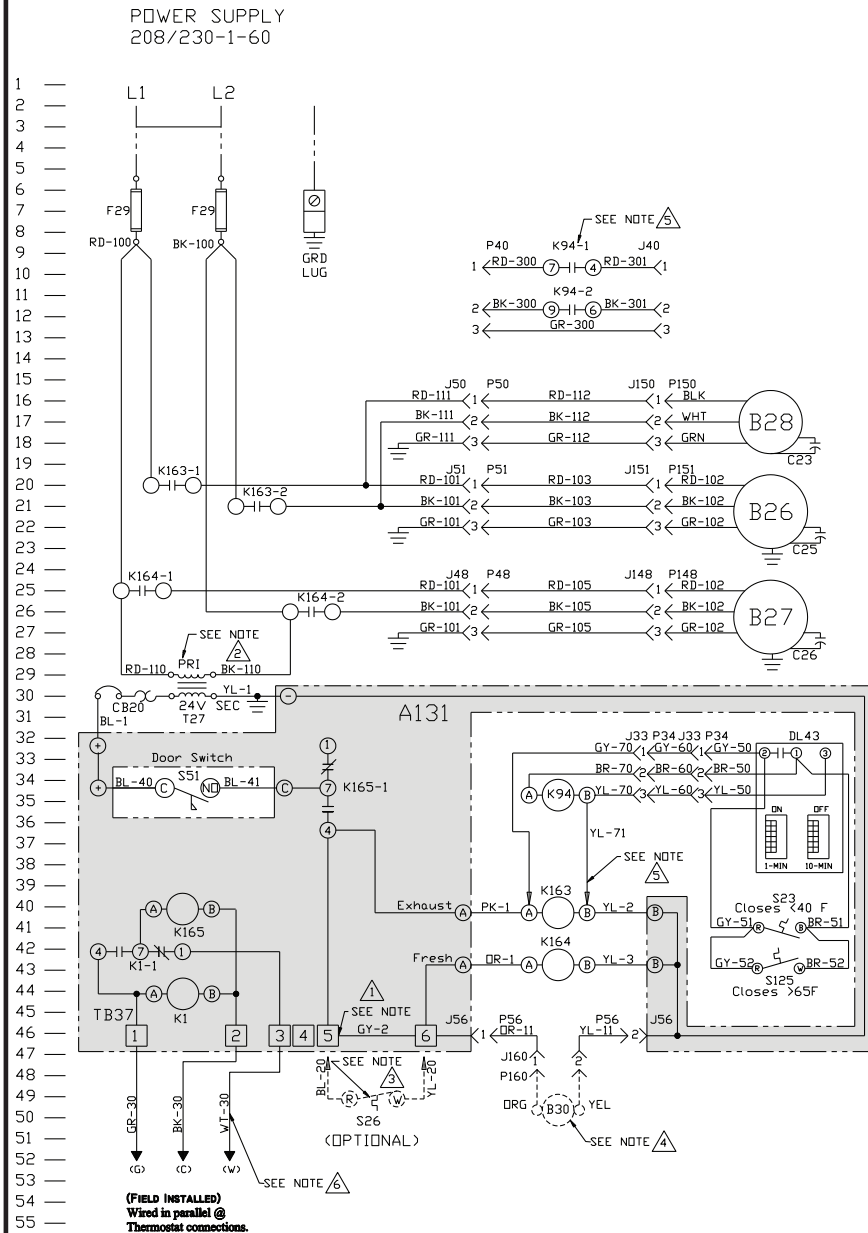


ERV Data			Dimensional Data										
ERV Series	CFM Range	Duct Size (G x J)	A	B	C	D	E	F	G	H	I	J	K
DB	300-1100	17.00 x 11.38	44.75	32.13	33.50	14.38	43.00	39.00	17.50	30.25	26.25	11.88	2.50
DC	1200-2000	21.88 x 14.00	54.38	37.25	37.50	17.50	52.75	48.75	22.38	35.50	31.50	14.50	2.50
DD	1200-2800	20.25 x 17.00	52.25	42.63	43.56	25.50	49.50	45.50	20.75	41.00	37.00	17.50	2.00
DE	2000-3600	23.38 x 17.38	60.00	46.69	57.37	25.50	55.75	51.75	23.88	41.81	37.81	17.91	2.00
DF	3000-4600	23.38 x 20.38	60.00	52.69	57.37	28.06	55.75	51.75	23.88	47.81	43.81	20.91	2.00
DG	4600-6200	29.38 x 30.00	72.00	70.88	63.63	37.75	67.75	63.75	29.88	66.00	62.00	30.50	2.00
DH	6000-8000	38.75 x 35.38	101.38	78.38	71.34	21.75	99.75	95.75	38.75	76.75	72.75	35.38	2.00
DJ	8000-13000	40.00 x 44.50	120.38	88.38	86.63	28.50	118.50	114.40	44.88	86.50	82.50	40.25	2.00

D (ERV) Series

Rev.: 04 April, 2014

ERV UNIT SCHEMATIC DIAGRAM



COMPONENT CODE

A131	Fixed Relay Board
B26	Motor, Exhaust Air
B27	Motor, Fresh Air
B28	Motor, Desiccant Wheel
B30	Motor, Damper (Optional)
C23	Capacitor, Wheel Motor
C25	Capacitor, Exhaust Air
C26	Capacitor, Fresh Air
DL43	Delay, Cycle Timer (Optional)
F29	Fuse
J33	Jack, Cycle Control (Optional)
J34	Jack, Cycle Control Harness (Optional)
J40	Jack, Cycle (Optional)
J48	Jack, Control Box (Fresh Air)
J50	Jack, Control Box (Wheel)
J51	Jack, Control Box (Exhaust Air)
J56	Jack, Control Box (Damper)
J148	Jack, Fresh Air Motor Harness
J150	Jack, Wheel Motor Harness
J151	Jack, Exhaust Air Motor Harness
J160	Jack, Damper Motor Harness
K94	Relay, On/Off (Optional)
K163	Contact, Exhaust Air Motor
K164	Contact, Fresh Air Motor
P33	Plug, Cycle Control (Optional)
P34	Plug, Cycle Control Harness (Optional)
P40	Plug, Wheel Cycle (Optional)
P48	Plug, Fresh Air Motor Harness
P50	Plug, Wheel Motor Harness
P51	Plug, Exhaust Air Motor Harness
P56	Plug, Damper Motor Harness
P148	Plug, Fresh Air Motor
P150	Plug, Wheel Motor
P151	Plug, Exhaust Air Motor
P160	Plug, Damper Motor
S23	Thermostat - Low Ambient (Optional)
S26	Switch, Low Ambient (Optional)
S51	Switch, Door
S125	Switch, Ambient Override (Optional)
T27	Transformer, Control
T28	Transformer, Step-down (Optional)

WIRE COLOR

BK	Black
BL	Blue
GR	Green
GY	Gray
OR	Orange
PK	Pink
RD	Red
WH	White
YL	Yellow

Notes:

1. Remove jumper to install field optional low ambient switch.
2. Selective voltage terminals for proper unit voltage.
3. Optional low ambient switch.
4. Optional motorized intake damper.
5. Optional Stop, Start and Jog Control.
6. For energy management systems connect +24v to "G" and common 24v to "C".

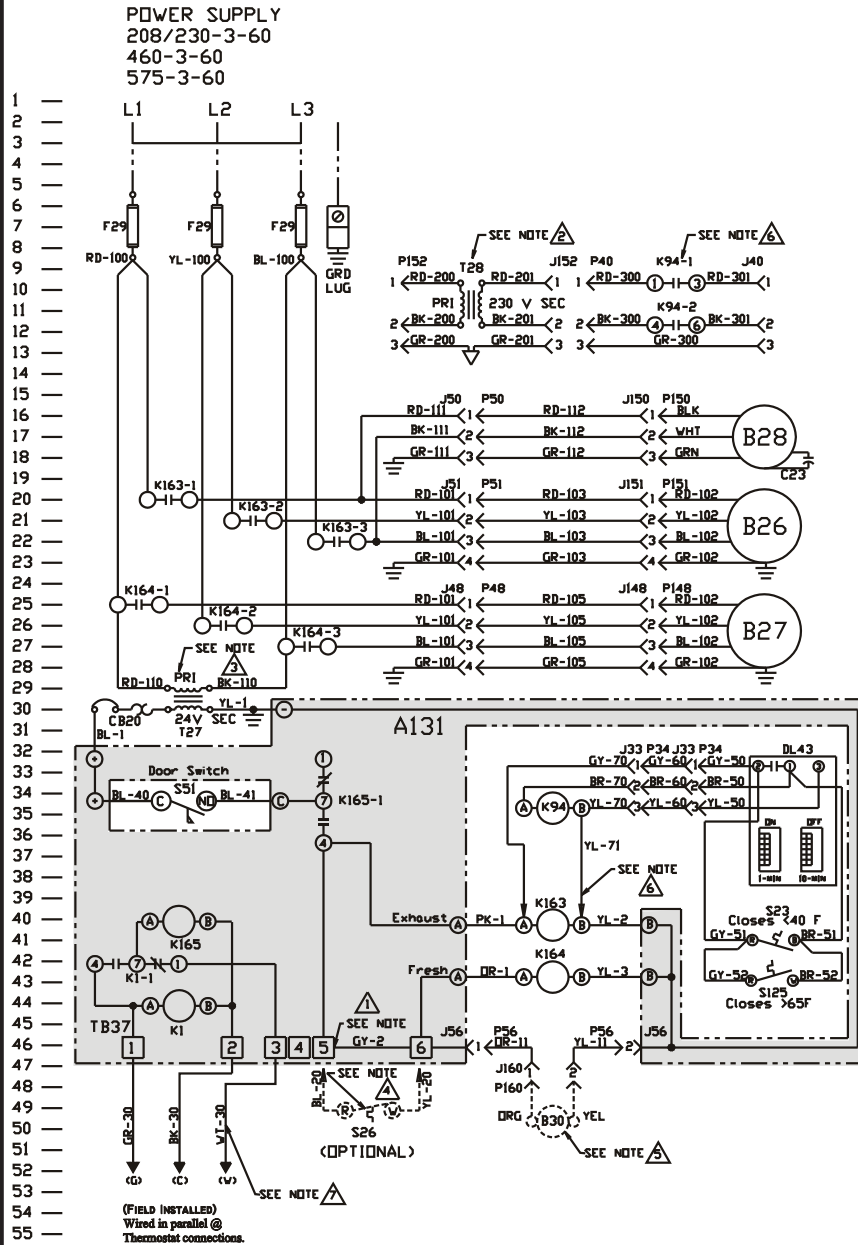
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DB-C

D (ERV) Series

Rev.: 04 April, 2014

ERV UNIT SCHEMATIC DIAGRAM



COMPONENT CODE

A131	Fixed Relay Board
B26	Motor, Exhaust Air
B27	Motor, Fresh Air
B28	Motor, Desiccant Wheel
B30	Motor, Damper (Optional)
C23	Capacitor, Wheel Motor
DL43	Delay, Cycle Timer (Optional)
F29	Fuse
J33	Jack, Cycle Control (Optional)
J34	Jack, Cycle Control Harness (Optional)
J40	Jack, Cycle (Optional)
J48	Jack, Control Box (Fresh Air)
J50	Jack, Control Box (Wheel)
J51	Jack, Control Box (Exhaust Air)
J56	Jack, Control Box (Damper)
J148	Jack, Fresh Air Motor Harness
J150	Jack, Wheel Motor Harness
J151	Jack, Exhaust Air Motor Harness
J152	Jack, Transformer (High Voltage)
J160	Jack, Damper Motor Harness
K94	Relay, On/Off (Optional)
K163	Contact, Exhaust Air Motor
K164	Contact, Fresh Air Motor
P33	Plug, Cycle Control (Optional)
P34	Plug, Cycle Control Harness (Optional)
P40	Plug, Wheel Cycle (Optional)
P48	Plug, Fresh Air Motor Harness
P50	Plug, Wheel Motor Harness
P51	Plug, Exhaust Air Motor Harness
P56	Plug, Damper Motor Harness
P148	Plug, Fresh Air Motor
P150	Plug, Wheel Motor
P151	Plug, Exhaust Air Motor
P152	Plug, Transformer (High Voltage)
P160	Plug, Damper Motor
S23	Thermostat - Low Ambient (Optional)
S26	Switch, Low Ambient (Optional)
S51	Switch, Door
S125	Switch, Ambient Override (Optional)
T27	Transformer, Control
T28	Transformer, Step-down (Optional)

WIRE COLOR

BK	Black
BL	Blue
GR	Green
GY	Gray
OR	Orange
PK	Pink
RD	Red
WH	White
YL	Yellow

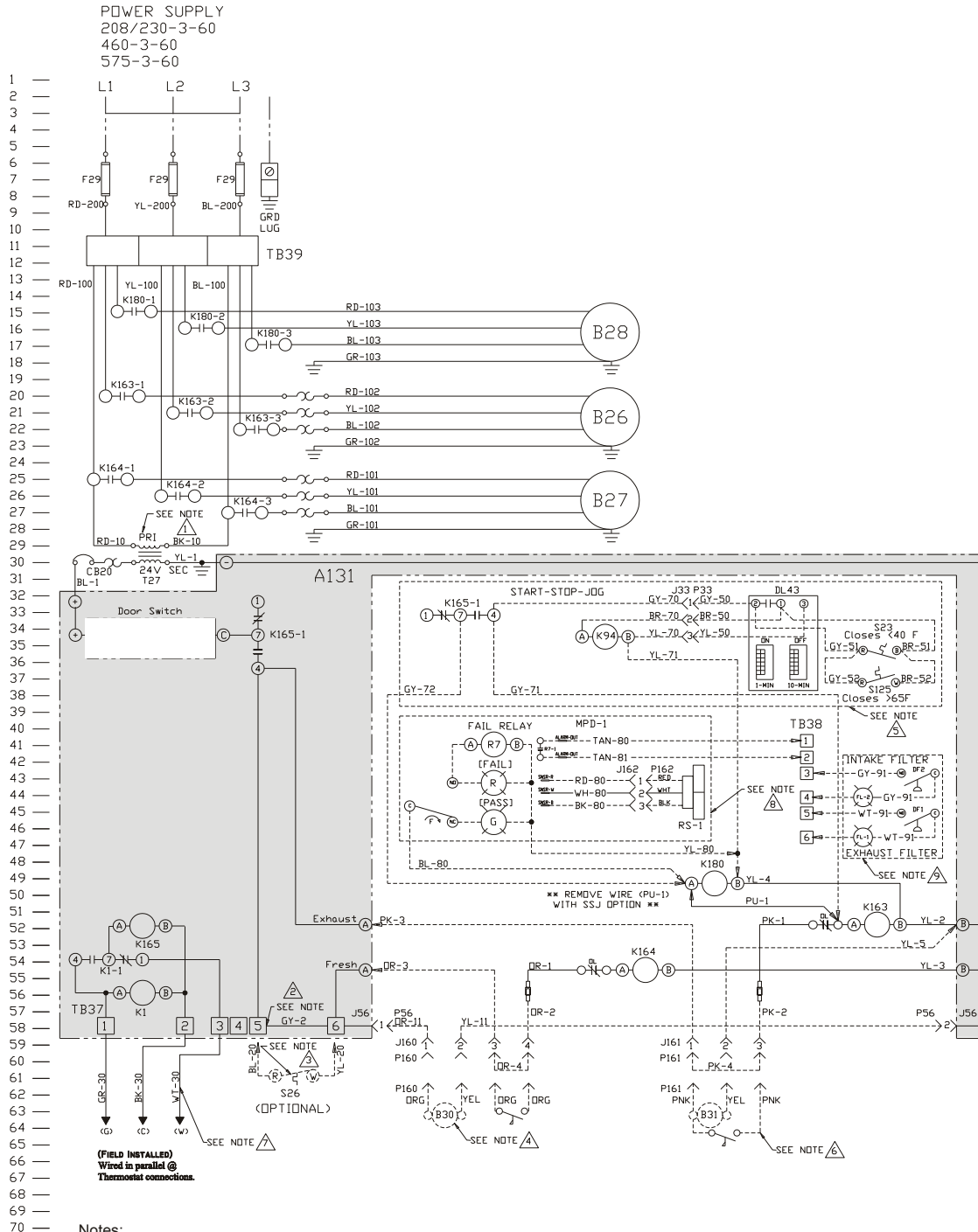
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DB

D (ERV) Series

Rev.: 04 April, 2014

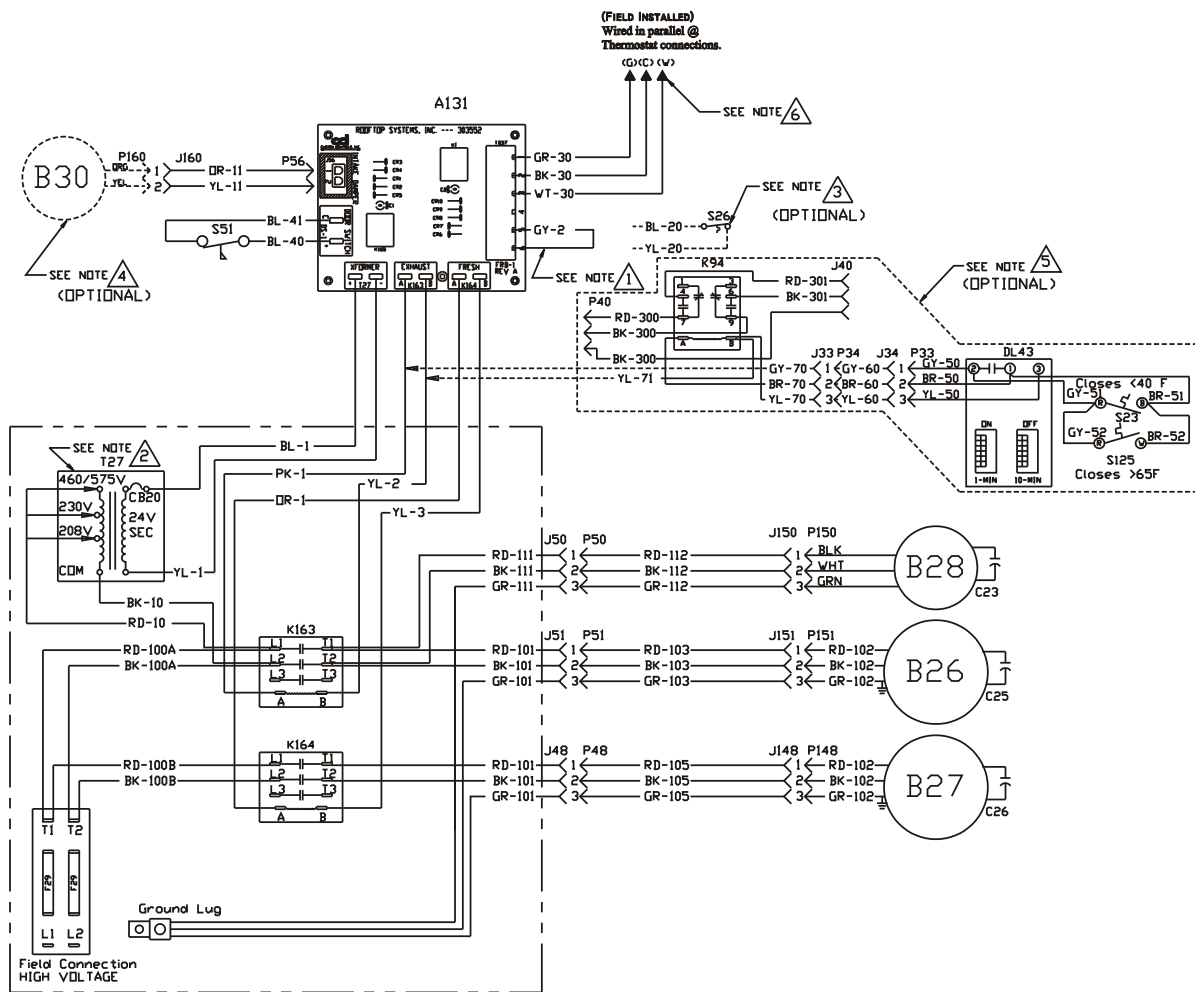
ERV UNIT SCHEMATIC DIAGRAM



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DH-DJ

ERV UNIT WIRING DIAGRAM



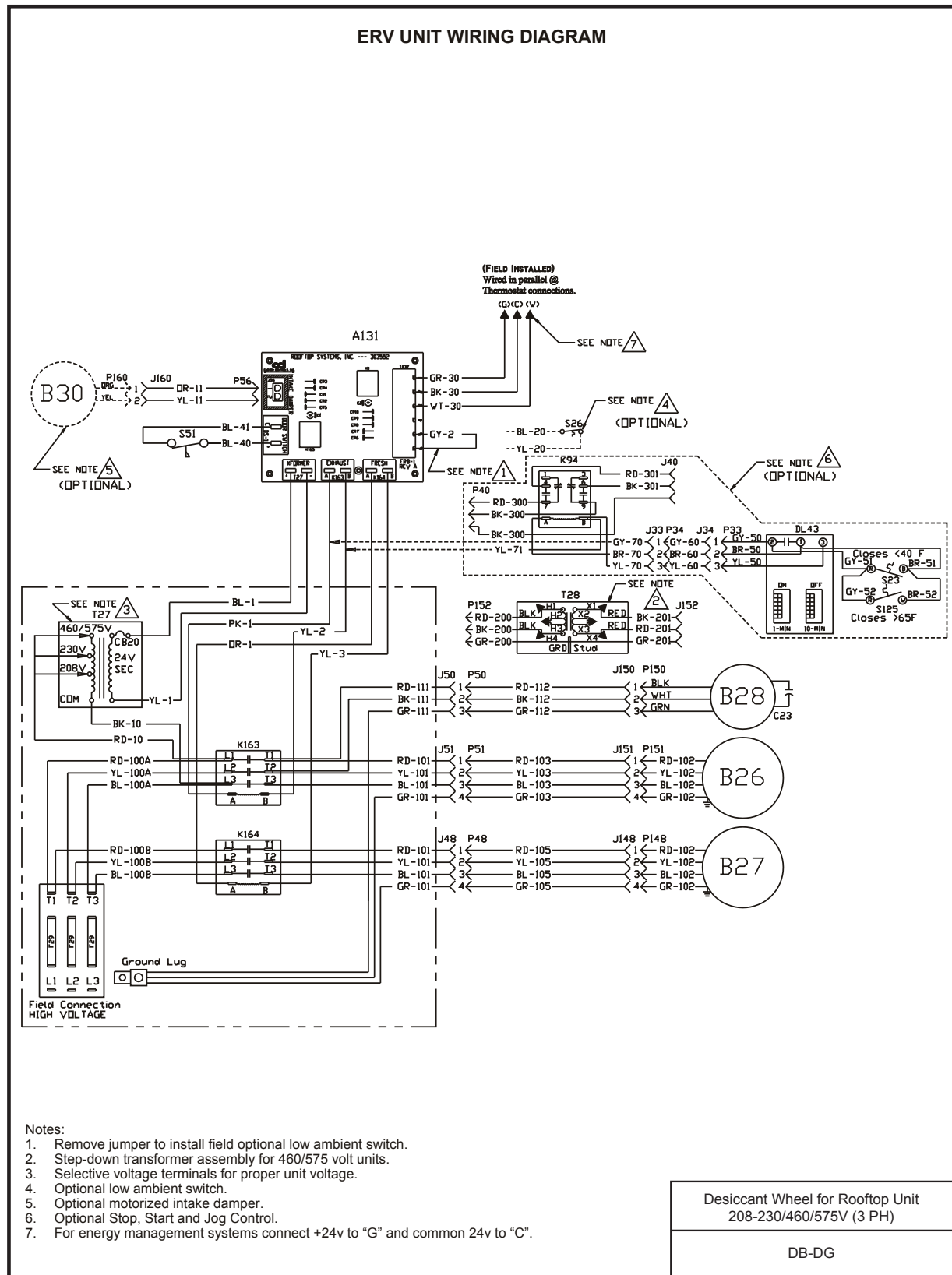
Desiccant Wheel for Rooftop Unit
208-230V (1 PH)

DB

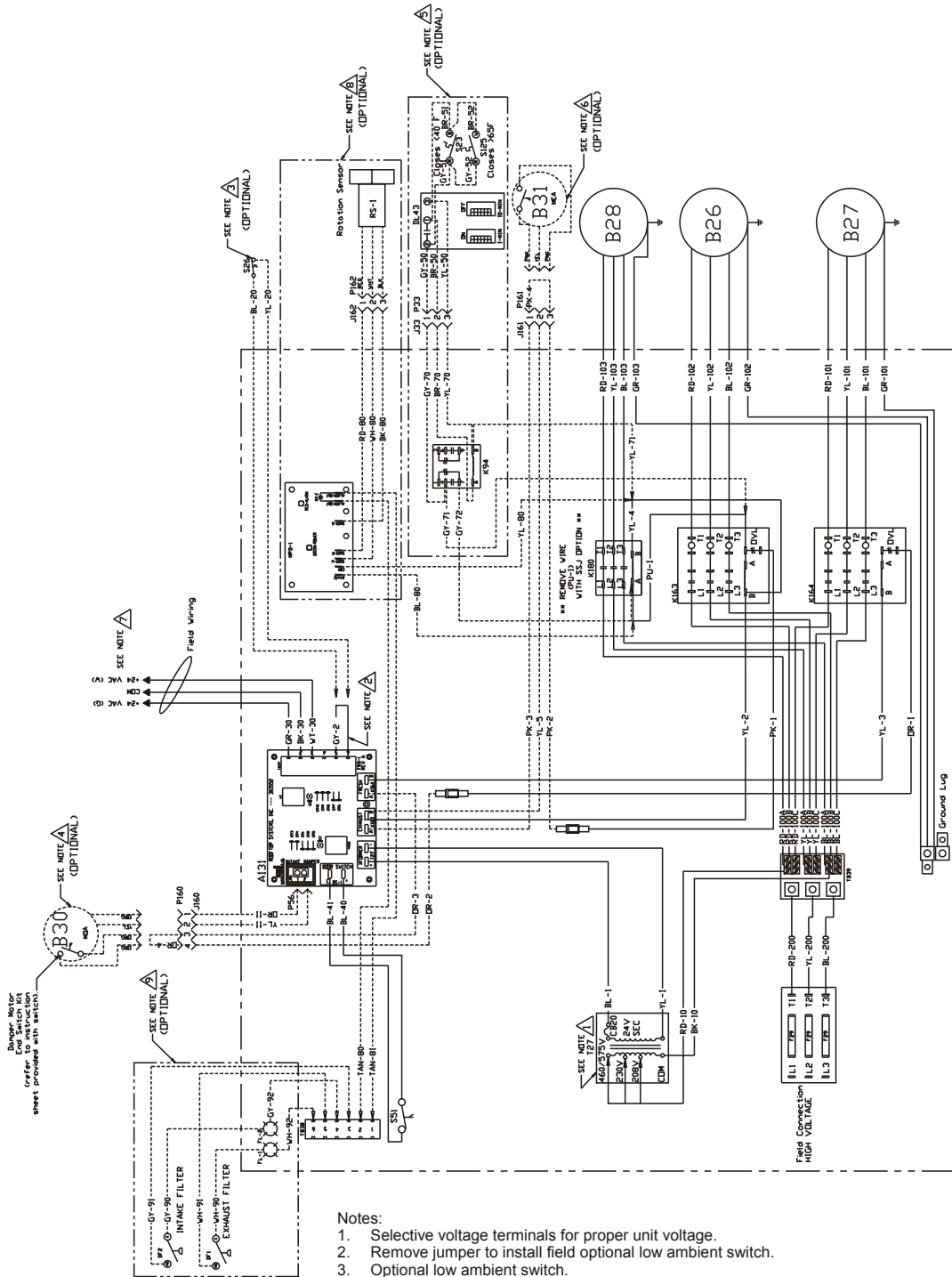
D (ERV) Series

Rev.: 04 April, 2014

ERV UNIT WIRING DIAGRAM



ERV UNIT WIRING DIAGRAM



D (ERV) Series

Rev.: 04 April, 2014

Blower RPM for DB

SUPPLY

Mist Eliminator Filter in Intake Hood (1.5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	300	N/A	N/A	1175	1350	1450	1605	1730
	500	N/A	1170	1340	1540	1655	1725	1840
	700	1295	1425	1600	1625	1795	1960	2035
	900	1540	1660	1720	1790	2030	2110	2195
	1100	1785	1915	2025	2185	N/A	N/A	N/A

EXHAUST

Barometric Hood, 2" Pleated Filters (1.5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	300	N/A	N/A	1030	1225	N/A	N/A	N/A
	500	N/A	1025	1180	1265	1425	1535	N/A
	700	1120	1190	1340	1445	1540	1645	1720
	900	1285	1525	1500	1575	1670	1785	1865
	1100	1570	1665	1670	1775	1860	1920	N/A

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range

	Low	1000-1300	Standard Unit
	Medium	1300-1700	Optional Kit
	High	1750-2200	Optional Kit

Blower RPM for DC

SUPPLY

Mist Eliminator Filter in Intake Hood (2HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	1200	1055	1135	1295	1420	1540	1650	1725
	1400	1140	1240	1340	1490	1600	1690	1795
	1600	1200	1330	1460	1565	1645	1740	1830
	1800	1320	1405	1525	1615	1705	1785	1885
	2000	1415	1515	1605	1690	1775	1875	1960

EXHAUST

Barometric Hood, 2" Pleated Filters (2HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	1200	1010	1195	1350	1445	1580	1685	1735
	1400	1125	1315	1435	1545	1620	1730	1800
	1600	1185	1370	1500	1610	1695	1790	1965
	1800	1305	1485	1600	1685	1781	1955	2030
	2000	1410	1550	1670	1765	1855	N/A	N/A

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range

	Low	1000-1300	Standard Unit
	Medium	1300-1700	Optional Kit
	High	1700-2080	Optional Kit

Blower RPM for DD

SUPPLY

Mist Eliminator Filter in Intake Hood (3HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	1200	N/A	790	960	1110	1210	1315	1380
	1600	750	900	1005	1145	1230	1365	1410
	2000	900	1005	1105	1210	1275	1400	1450
	2400	1005	1125	1210	1275	1365	1450	1500
	2800	1125	1230	1315	1380	1450	1535	1600

EXHAUST

Barometric Hood, 2" Pleated Filters (3HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	1200	750	885	1015	1145	1260	1350	1485
	1600	870	1015	1125	1215	1325	1410	1500
	2000	1015	1145	1240	1345	1410	1485	1560
	2400	1125	1250	1345	1430	1500	1575	1630
	2800	1250	1410	1485	1520	1630	1650	1675

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range			
	Low	950-1320	Standard Unit
	Medium	1325-1565	Optional Kit
	High	1570-1880	Optional Kit

Blower RPM for DE

SUPPLY

Mist Eliminator Filter in Intake Hood (3HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	2000	725	825	900	1000	1070	1180	1250
	2400	800	900	1000	1070	1160	1250	1275
	2800	900	1000	1070	1160	1250	1275	1340
	3200	1000	1070	1160	1250	1275	1340	1400
	3600	1055	1180	1250	1300	1360	N/A	N/A

EXHAUST

Barometric Hood, 2" Pleated Filters (3HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	2000	750	865	950	1030	1100	1200	1265
	2400	820	950	1035	1100	1200	1265	1300
	2800	925	1035	1150	1200	1265	1315	1350
	3200	1035	1160	1215	1265	1325	1350	1390
	3600	1100	1215	1300	1350	1390	N/A	N/A

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range			
	Low	700-1025	Standard Unit
	Medium	1030-1305	Optional Kit
	High	1325-1575	Optional Kit

D (ERV) Series

Rev.: 04 April, 2014

Blower RPM for DF

SUPPLY

Mist Eliminator Filter in Intake Hood (5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	3000	900	1030	1100	1165	1240	1285	1350
	3400	975	1085	1100	1165	1290	1350	1400
	3800	1070	1175	1240	1290	1350	1400	1465
	4200	1165	1240	1320	1350	1430	1465	1515
	4600	1240	1320	1375	1430	1500	1515	1580

EXHAUST

Barometric Hood, 2" Pleated Filters (5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	3000	955	1100	1160	1245	1280	1360	1425
	3400	1055	1185	1245	1300	1375	1425	1480
	3800	1160	1300	1360	1400	1425	1530	1585
	4200	1245	1375	1450	1480	1500	1585	1650
	4600	1360	1450	1500	1585	1600	1650	1700

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range		
	Low	780-1020
	Medium	1000-1315
	High	1315-1700

Standard Unit

Optional Kit

Optional Kit

Blower RPM for DG

SUPPLY

Mist Eliminator Filter in Intake Hood (5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	4600	815	900	975	1045	1085	1125	1175
	5000	880	940	1015	1060	1135	1175	1215
	5400	915	975	1045	1125	1150	1195	1250
	5800	975	1045	1085	1175	1250	1260	N/A
	6200	1000	1075	1165	1200	N/A	N/A	N/A

EXHAUST

Barometric Hood, 2" Pleated Filters (5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	4600	825	915	1000	1025	1100	1140	1170
	5000	890	975	1025	1100	1140	1170	1240
	5400	925	1000	1085	1140	1170	1240	1280
	5800	975	1025	1140	1170	1240	N/A	N/A
	6200	1025	1120	1170	N/A	N/A	N/A	N/A

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range		
	Low	820-1000
	Medium	1000-1200
	High	1175-1375

Standard Unit

Optional Kit

Optional Kit

Blower RPM for DH

SUPPLY

Mist Eliminator Filter in Intake Hood (10HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	6000	737	794	851	908	961	1012	1061
	6400	786	839	893	947	998	1047	1094
	6800	836	886	937	987	1036	1083	1129
	7200	885	931	979	1027	1074	1119	1163
	7600	934	978	1024	1069	1114	1159	1200
	8000	983	1025	1068	1111	1154	1196	1237

EXHAUST

Barometric Hood, 2" Pleated Filters (7.5HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	6000	599	660	716	769	818	866	911
	6400	639	695	748	798	846	892	935
	6800	679	733	783	831	877	921	963
	7200	719	769	817	863	907	949	990
	7600	759	808	854	897	940	980	1020
	8000	799	845	889	931	972	1011	1049

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range	
Low	Standard Unit
Medium	Optional Kit
High	Optional Kit

Blower RPM for DJ

SUPPLY

Mist Eliminator Filter in Intake Hood (15HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	8000	427	470	512	552	591	630	667
	8800	469	509	547	584	621	656	691
	9600	512	548	583	618	651	684	717
	10400	555	589	621	653	684	715	746
	11200	597	629	659	689	718	747	776
	12000	640	670	698	726	754	781	808

EXHAUST

Barometric Hood, 2" Pleated Filters (15HP)								
		External Static Pressure (in water)						
		0	0.25	0.5	0.75	1	1.25	1.5
CFM	8000	437	480	521	551	600	639	676
	8800	481	520	558	595	631	665	701
	9600	525	561	596	630	663	696	728
	10400	569	602	634	665	697	727	758
	11200	612	643	674	703	732	761	789
	12000	656	685	713	741	768	795	822

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions
3. Blower RPMs are for reference only

RPM Range	
Low	Standard Unit
Medium	Optional Kit
High	Optional Kit

D (ERV) Series

Rev.: 04 April, 2014

START UP INFORMATION SHEET

VOLTAGE - ERV UNIT

Incoming Voltage L1-L2 _____ L1-L3 _____ L2-L3 _____
 Running Voltage L1-L2 _____ L 1-L3 _____ L2-L3 _____
 Secondary Voltage _____ C (black) to G (green) Volts* _____
 C (black) to W (white) Volts* _____

* With thermostat calling.

AMPERAGE - ERV MOTORS

Intake Motor: Nominal HP _____ Rated Amps _____ Running Amps _____
 Exhaust Motor: Nominal HP _____ Rated Amps _____ Running Amps _____
 Wheel Motor: Nominal HP _____ Rated Amps _____ Running Amps _____

AIRFLOW

Intake Design CFM _____ Pressure Drop _____ Calculated CFM _____
 Exhaust Design CFM _____ Pressure Drop _____ Calculated CFM _____
 Amb. db Temp _____ Return Air db Temp* _____ Tempered Air db Temp* _____
 Amb. wb Temp _____ Return Air wb Temp* _____ Tempered Air wb Temp* _____

* Measure after 15 minutes of run time

INSTALLATION CHECK LIST

Model # _____ Serial # _____
 Owner _____ Owner Phone # _____
 Owner Address _____
 Installing Contractor _____ Start Up Mechanic _____

- ☐ Inspect the unit for transit damage and report any damage on the carrier's freight bill.
- ☐ Check model number to insure it matches the job requirements.
- ☐ Install field accessories and unit adapter panels as required. Follow accessory and unit installation manuals.
- ☐ Verify field wiring, including the wiring to any accessories.
- ☐ Check all multi-tap transformers, to insure they are set to the proper incoming voltage.
- ☐ Verify correct belt tension, as well as the belt/pulley alignment. Tighten if needed.
- ☐ Prior to energizing the unit, inspect all the electrical connections.
- ☐ Power the unit. Bump the motor contactor to check rotation. Three phase motors are synchronized at the factory. If blower motor fans are running backwards, de-energize power to the unit, then swap two of the three incoming electrical lines to obtain proper phasing. Re-check.
- ☐ Perform all start up procedures outlined in the installation manual shipped with the unit.
- ☐ Fill in the Start Up Information as outlined on the opposite side of this sheet.
- ☐ Provide owner with information packet. Explain the thermostat and unit operation.



CLIMATE MASTER, INC. LIMITED EXPRESS WARRANTY/ LIMITATION OF REMEDIES AND LIABILITY

It is expressly understood that unless a statement is specifically identified as a warranty, statements made by Climate Master, Inc., a Delaware corporation, ("CM") or its representatives, relating to CM's products, whether oral, written or contained in any sales literature, catalog or any other agreement, are not express warranties and do not form a part of the basis of the bargain, but are merely CM's opinion or commendation of CM's products.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXPRESS WARRANTY AS TO ANY OF CM'S PRODUCTS. CM MAKES NO WARRANTY AGAINST LATENT DEFECTS. CM MAKES NO WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.

GRANT OF LIMITED EXPRESS WARRANTY

CM warrants CM products purchased and retained in the United States of America and Canada to be free from defects in material and workmanship under normal use and maintenance as follows: (1) All complete air conditioning, heating and/or heat pump units built or sold by CM for twelve (12) months from date of unit start up or eighteen (18) months from date of shipment (from factory), whichever comes first; (2) Repair and replacement parts, which are not supplied under warranty, for ninety (90) days from date of shipment (from factory). All parts must be returned to CM's factory in Oklahoma City, Oklahoma, freight prepaid, no later than sixty (60) days after the date of the failure of the part; if CM determines the part to be defective and within CM's Limited Express Warranty, CM shall, when such part has been either replaced or repaired, return such to a factory recognized dealer, contractor or service organization, F.O.B. CM's factory, Oklahoma City, Oklahoma, freight prepaid. The warranty on any parts repaired or replaced under warranty expires at the end of the original warranty period.

This warranty does not cover and does not apply to: (1) Air filters, fuses, refrigerant, fluids, oil; (2) Products relocated after initial installation; (3) Any portion or component of any system that is not supplied by CM, regardless of the cause of the failure of such portion or component; (4) Products on which the unit identification tags or labels have been removed or defaced; (5) Products on which payment to CM is or has been in default; (6) Products which have defects or damage which result from improper installation, wiring, electrical imbalance characteristics or maintenance; or are caused by accident, misuse or abuse, fire, flood, alteration or misapplication of the product; (7) Products which have defects or damage which result from a contaminated or corrosive air or liquid supply, operation at abnormal temperatures, or unauthorized opening of refrigerant circuit; (8) Mold, fungus or bacteria damages; (9) Products subjected to corrosion or abrasion; (10) Products manufactured or supplied by others; (11) Products which have been subjected to misuse, negligence or accidents; (12) Products which have been operated in a manner contrary to CM's printed instructions; or (13) Products which have defects, damage or insufficient performance as a result of insufficient or incorrect system design or the improper application of CM's products.

CM is not responsible for: (1) The costs of any fluids, refrigerant or other system components, or associated labor to repair or replace the same, which is incurred as a result of a defective part covered by CM's Limited Express Warranty; (2) The costs of labor, refrigerant, materials or service incurred in removal of the defective part, or in obtaining and replacing the new or repaired part; or, (3) Transportation costs of the defective part from the installation site to CM or of the return of any part not covered by CM's Limited Express Warranty.

Limitation: This Limited Express Warranty is given in lieu of all other warranties. If, notwithstanding the disclaimers contained herein, it is determined that other warranties exist, any such warranties, including without limitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited to the duration of the Limited Express Warranty.

LIMITATION OF REMEDIES

In the event of a breach of the Limited Express Warranty, CM will only be obligated at CM's option to repair the failed part or unit or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If, after written notice to CM's factory in Oklahoma City, Oklahoma of each defect, malfunction or other failure and a reasonable number of attempts by CM to correct the defect, malfunction or other failure and the remedy fails of its essential purpose, CM shall refund the purchase price paid to CM in exchange for the return of the sold good(s). Said refund shall be the maximum liability of CM. **THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR THEIR PURCHASER AGAINST CM FOR BREACH OF CONTRACT, FOR THE BREACH OF ANY WARRANTY OR FOR CM'S NEGLIGENCE OR IN STRICT LIABILITY.**

LIMITATION OF LIABILITY

CM shall have no liability for any damages if CM's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to: any war, civil unrest, government restrictions or restraints, strikes or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, acts of God or any other reason beyond the sole control of CM. **CM EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE IN CONTRACT, FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, OR IN TORT, WHETHER FOR CM'S NEGLIGENCE OR AS STRICT LIABILITY.**

OBTAINING WARRANTY PERFORMANCE

Normally, the contractor or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any CM recognized dealer, contractor or service organization. If assistance is required in obtaining warranty performance, write or call:

Climate Master, Inc. • Customer Service • 7300 S.W. 44th Street • Oklahoma City, Oklahoma 73179 (405) 745-6000

NOTE: Some states or Canadian provinces do not allow limitations on how long an implied warranty lasts, or the limitation or exclusions of consequential or incidental damages, so the foregoing exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and from Canadian province to Canadian province.

Please refer to the CM Installation, Operation and Maintenance Manual for operating and maintenance instructions.

Rev.: 11/09

LC083



D (ERV) Series

Rev.: 04 April, 2014

Revision History

Date:	Item:	Action:
04/04/14	Logos - page 1 & 20	Updated
11/21/13	Created	



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